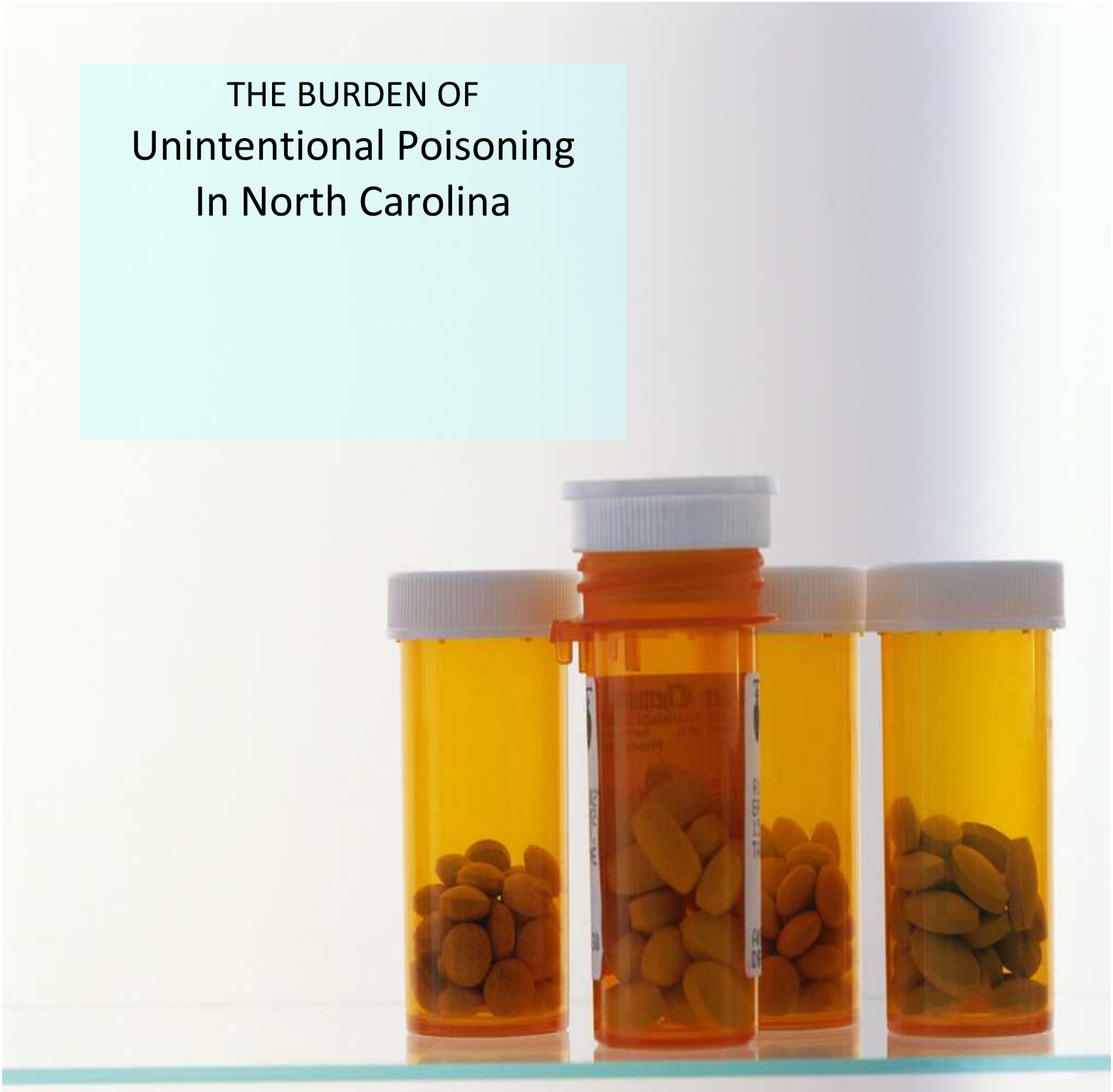
# THE BURDEN OF
# Unintentional Poisoning
# In North Carolina



nc department of health and human services

North Carolina Public Health

North Carolina Injury & Violence PREVENTION Branch

# THE BURDEN OF

# Unintentional

# Poisonings in North Carolina

# January 2010

**Katherine J. Harmon, MPH**


**State of North Carolina**
**Beverly Eaves Perdue, Governor**
**Department of Health and Human Services**
**Lanier M. Cansler, Secretary**
**Division of Public Health**
**Jeffrey P. Engel, M.D. State Health Director**
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## *Acknowledgements:*

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# *Table of Contents:*

## *Highlights:*

- **In 2007, 901 individuals died from unintentional poisoning in North Carolina.**
- **The North Carolina death rate from unintentional poisoning exceeds the national rate.**
- **Unintentional poisonings are the second leading cause of injury in the state.**
- **Men die from unintentional poisonings at 1.8 times the rate of women; whites die at 2.7 times the rate of other races.**
- **Narcotics and prescription drugs account for approximately 77% of al unintentional poisoning deaths.**
- **Nonfatal poisonings are especially common in young children under the age of five.**

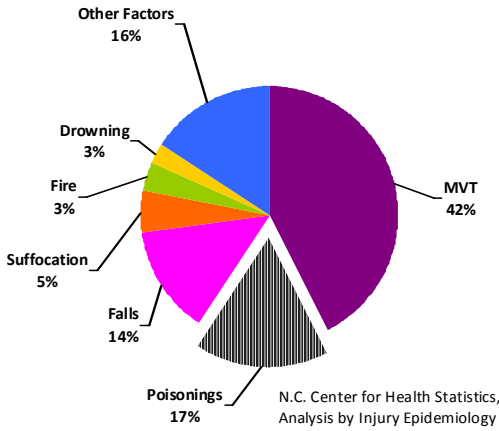
## *Overview and Trends of Injury and Poisoning in North Carolina*

Since 1999, unintentional injuries caused greater than 33,900 deaths[1] in North Carolina making them the fourth leading cause of death in the state.

Unintentional poisonings may not receive the same amount of attention as other causes of death; however, deaths from unintentional poisonings exceed the number of deaths from hypertension, atherosclerosis, homicide, HIV, or liver disease[2]. Since 1999, 5,717 North Carolina residents have lost their lives from unintentional poisonings.

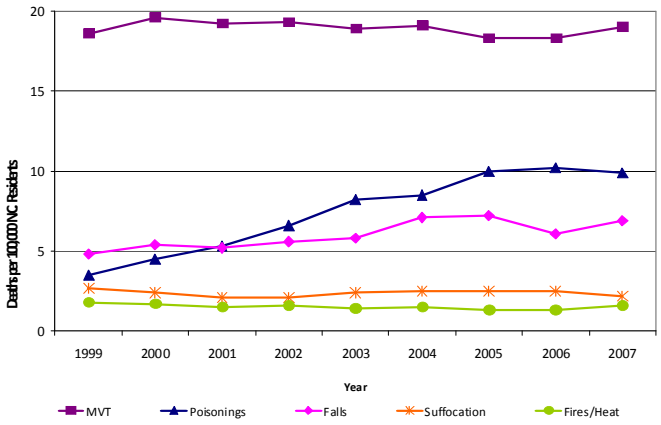
Poisoning is the second leading cause of unintentional injury in North Carolina after motor vehicle traffic (MVT) deaths. Since 1999, unintentional poisonings caused 17% of all injury deaths; the other leading causes of fatal unintentional injuries were falls (14%), other and unspecified factors (16%), suffocation (5%), fire and heat (3%), and drowning (3%) (Figure 1). Unlike fatal MVT crashes, the rate of unintentional poisoning has steadily increased over the last decade. In 1999, the rate of fatal unintentional poisonings per 100,000 North Carolina residents was 3.5 deaths; by 2007 the rate increased to 9.9 deaths, a 183% increase. The rate of fatal MVT crashes increased by only 0.5% during this same interval (Figure 2)[3].

Figure 1. Number of Unintentional Injury Deaths (ICD-10 V01-X59): North Carolina Residents, 1999-2007




N.C. Center for Health Statistics, Vital Statistics, 2007
Analysis by Injury Epidemiology and Surveillance Unit

Figure 2. Top Five Leading Causes of Unintentional Injury Deaths (ICD-10 V01-X59): N.C. Residents, 1999-2007



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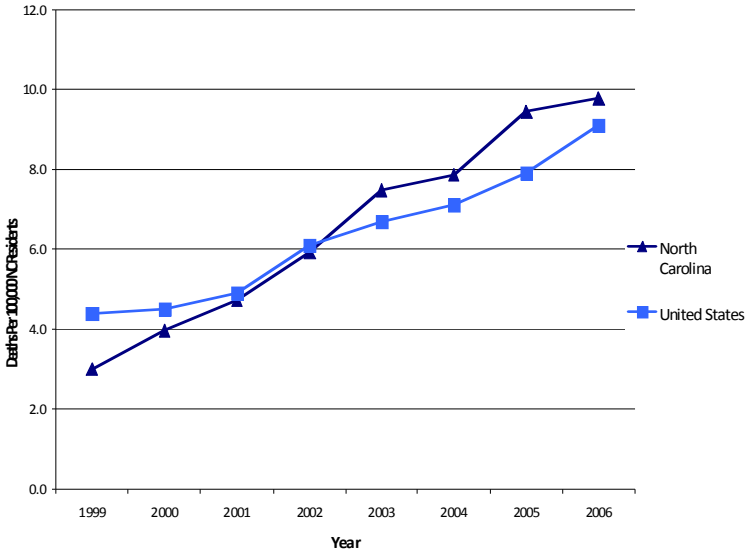
If deaths from unintentional poisonings continue to escalate at the current rate, the number of unintentional poisoning deaths will surpass the number of MVT deaths by 2017. This alarming trend has already become a reality in seven states and the District of Columbia[4,5].

The rapid escalation in unintentional poisoning deaths is not limited to North Carolina. Rates are increasing nationally; the age-adjusted death rate for the United States rose from 4.4 deaths per 100,000 U.S. population in 1999 to 9.1 deaths in 2006 (Figure 3). This was slightly less than the increase observed in North Carolina during the same period[5]. Methadone, oxycodone, hydrocodone, and other opioid painkillers are the most common causes of unintentional poisoning deaths in both the United States and North Carolina.[6]

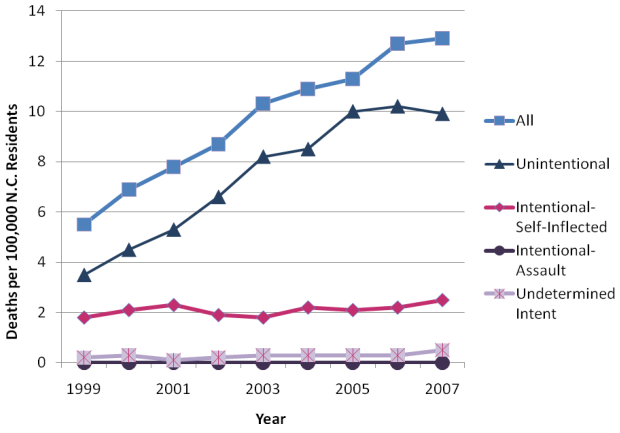
Unintentional deaths from poisoning comprise the majority of all poisoning deaths (Figure 4). Of the 7,537 poisonings between the years 1999-2007, 76 percent were unintentional, 21 percent were intentional, and 3 percent were of undetermined intent. The dramatic increase in the rates of deaths from poisonings over the past decade is primarily due to the increase in unintentional poisonings.

Figure 3. Comparison of Age-Adjusted Rates of Unintentional Poisoning Deaths (X40-X49) for the United States and North Carolina: 2000 U.S. Standard Population, 1999-2006 (CDC-WISQARS)




CDC, WISQARS, 2006
Analysis by Injury Epidemiology and Surveillance Unit

Figure 4. Poisoning Death Rates by All Manners of Intent: N.C. Residents 1999-2007

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## *Demographic Information:*

Overall, 901 North Carolina residents died due to unintentional poisoning in 2007. Table 1 provides demographic characteristics of these deaths. In North Carolina, certain populations are at a greater risk of fatal poisoning:

- Men were 1.8 times more likely to die from unintentional poisoning than women. The rate of deaths from unintentional poisoning in men was 12.8 (95% C.I. 11.7-13.9). The rate of unintentional poisoning deaths in women was 7.2 (95% C.I. 6.4-8.0).
- Whites had much higher rates of unintentional poisoning than other racial groups. The rate of unintentional poisoning in whites was 11.8 (95% C.I. 11.0-12.6)
- Children between the ages of 5 and 14 comprised the lowest percentage of deaths from unintentional poisoning (0.2%).
- Unintentional deaths from poisonings peaked between the ages of 25-54 (694 deaths).
- The frequencies and rates of deaths from unintentional poisonings were highest for North Carolina residents between the ages of 35 and 44 and 45 and 54. The rates for these age groups were 19.4 and 20.1, respectively (95% C.I. 17.0-21.8, 17.7-22.5).
- The rate for all unintentional poisoning deaths in North Carolina for 2007 was 9.9 (95% C.I. 9.3-10.5).

## *Definitions:*

**The CDC defines a poison as "any substance that is harmful to your body when ingested, inhaled, injected, or absorbed through the skin[7]."**

- **This definition does *not* include adverse reactions to medication.**

**An unintentional poisoning is a poisoning in which the individual exposed to the substance is not attempting to cause harm to himself/herself or others[5].**

- **This includes unintentional overdoses of prescription or recreational drugs.**
- **Other potential poisons include exhaust fumes and gases, pesticides, acids, organic solvents, and petroleum products.**

**All unintentional poisoning deaths are classified according to the criteria stipulated by the World Health Organization's International Classification of Disease codes, version 10 (ICD-10) and fall under codes X40-X49[8].Poisonings of undetermined intent (Y10-Y19) were excluded from analysis in this report..**

**Hospitalization and Emergency Department injury codes are classified using ICD-9 CM. The codes used for analysis are pulled from the Supplementary Classification of External Causes of Injury and Poisoning (E800-E999). The range of codes specific to unintentional poisonings are E850-E858 (Unintentional Poisoning by Drugs, Medicinal Substances, and Biologicals) and E860-E864 and E866-E869.**

| Table 1. Gender, Ethnicity, Race, and Age Group of Unintentional Deaths from Poisoning: N.C. Residents, 2007 | | | | | | |
|---|---|---|---|---|---|---|
| | | **Number** | **Percent** | **Rate[§]** | **95% Confidence Interval (C.I.) for Rate** | |
| | | | | | *Lower* | *Upper* |
| **Gender** | | | | | | |
| | Male | 567 | 62.9 | 12.8 | 11.7 | 13.9 |
| | Female | 334 | 37.1 | 7.2 | 6.4 | 8.0 |
| **Hispanic Ethnicity** | | | | | | |
| | Hispanic | 10 | 1.1 | * | * | * |
| | Non-Hispanic | 890 | 98.9 | 10.6 | 9.9 | 11.3 |
| **Race** | | | | | | |
| | American Indian | 7 | 0.8 | * | * | * |
| | Asian/Pacific Islander | 2 | 0.2 | * | * | * |
| | Black | 92 | 10.2 | 4.6 | 3.7 | 5.5 |
| | White | 799 | 88.8 | 11.8 | 11.0 | 12.6 |
| **Age Group (Years)** | | | | | | |
| | 00-04 | 2 | 0.2 | * | * | * |
| | 05-09 | 1 | 0.1 | * | * | * |
| | 10-14 | 1 | 0.1 | * | * | * |
| | 15-19 | 29 | 3.2 | 4.7 | 3.0 | 6.4 |
| | 20-24 | 80 | 8.9 | 13.1 | 10.2 | 16.0 |
| | 25-34 | 172 | 19.1 | 14.1 | 12.0 | 16.2 |
| | 35-44 | 260 | 28.9 | 19.4 | 17.0 | 21.8 |
| | 45-54 | 262 | 29.1 | 20.1 | 17.7 | 22.5 |
| | 55-64 | 68 | 7.5 | 6.6 | 5.0 | 8.2 |
| | 65-74 | 14 | 1.6 | * | * | * |
| | 75-84 | 6 | 0.7 | * | * | * |
| | 85+ | 6 | 0.7 | * | * | * |
| ***Total Deaths*** | | ***901*** | ***100.0*** | ***9.9*** | ***9.3*** | ***10.5*** |

*Rate is based on fewer than 20 deaths and is considered statistically unreliable.
§All rates are per 100,000 N.C. residents.

N.C. Center for Health Statistics
Vital Statistics, 2007
Analysis by Injury Surveillance and Epidemiology Unit

The majority of all unintentional poisoning deaths are due to an unintentional overdose of prescription, over-the-counter (OTC), or illegal drugs. Narcotics and pyschodysleptics (X42), including cocaine, heroin, methadone, and other opioids, are associated with approximately 77% of all deaths (Table 2).

Many deaths from unintentional poisonings are due to multiple substances; therefore, there are more substances identified as causing or contributing to death than there are deaths in any given year. Causes of death were classified using the International Classification of Disease, Version 10 (ICD-10) codes T36-T50 (Poisoning by Drugs, Medicaments, and Biological Substances) and T51-T65 (Toxic Effects Chiefly Nonmedicinal as to Source; T61-T64, poisonings by foodstuffs, plants, fungi, and animals), were excluded from analysis. Figures 5 and 6 present all mentioned causes of death. For additional information regarding Figures 5 and 6, including the codes used to generate these figures, please see the Notes section, page 17.

- Prescription and OTC drugs contributed to more than 3/4 of deaths from unintentional poisoning in 2007. OTC drugs are available without a prescription at a pharmacy. Prescription drugs can be legally administered to a patient with the written consent of a physician. Both OTC and prescription drugs may be obtained illegally by other means.
- Illicit drugs or "street drugs," that are nearly always used for recreational purposes, contributed to another 23 percent of deaths.
- Methadone, a drug prescribed by physicians for pain relief or to treat heroin addiction, contributed to over 1/3 of poisoning deaths (307 deaths).
- Other opioids and other and unspecified narcotics contributed to a total of 339 deaths.
- Among illicit drugs, cocaine was the most prevalent substance (216 deaths). Cocaine caused more than four times the number of heroin deaths.
- Alcohol was the only chemical substance other than prescription and illicit drugs that contributed to a substantial number of deaths (50 deaths).

Table 2. Frequency of Unintentional Poisoning Deaths by Primary Cause (ICD-10 X40-X49): N.C. Residents, 2007

| Cause | ICD-10 Code | Number | % |
|---|---|---|---|
| **Nonopioid analgesics, antipyretics, and antireheumatics** | X40 | 11 | 1.2 |
| **Antiepileptic, sedative-hypnotic, antiparkinsonism, and psychotropic drugs** | X41 | 22 | 2.4 |
| **Narcotics and psychodysleptics** | X42 | 693 | 76.9 |
| **Other and unspecified drugs** | X44 | 131 | 14.5 |
| **Alcohol** | X45 | 30 | 3.3 |
| **Organic solvents and hydrocarbons** | X46 | 2 | 0.2 |
| **Other gases and vapors** | X47 | 10 | 1.1 |
| **Other and unspecified chemicals** | X49 | 2 | 0.2 |
| ***Total:*** | | ***901*** | ***100.0*** |

N.C. Center for Health Statistics, Vital Statistics, 2007
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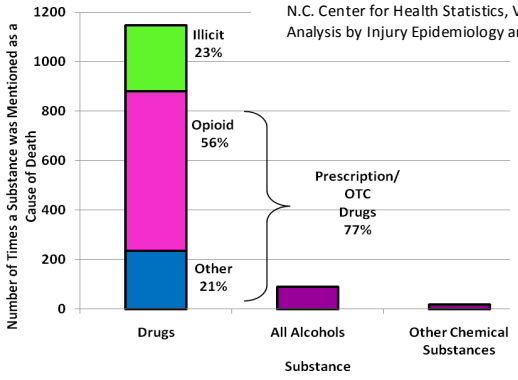
Figure 5. Causes of Deaths from Unintentional Poisonings (ICD-10 T36-T60): N.C. Residents, 2007




N.C. Center for Health Statistics, Vital Statistics, 2007
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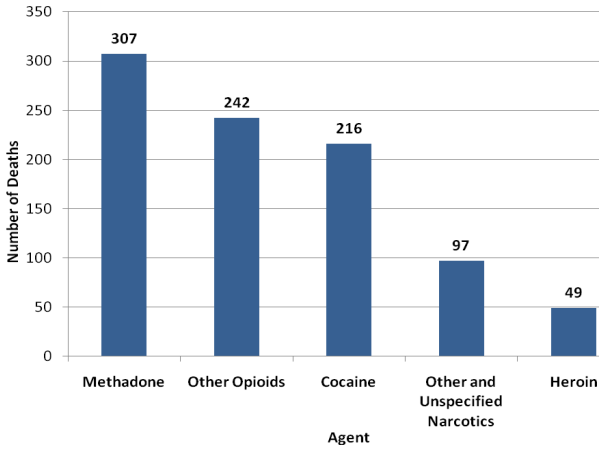
***Definitions:***
***Illicit drugs***: are substances that are not considered to have a legitimate medical use.
***Prescription drugs:*** have a medical use and may be prescribed by a physician or may be misused/abused illicitly.
Drug categories are not mutually exclusive. Deaths involving more than one category are counted multiple times.

Figure 6. Top Five Causes of Prescription and Illicit Drug Deaths (ICD-10 T36-T50): N.C. Residents, 2007




N.C. Center for Health Statistics, Vital Statistics, 2007
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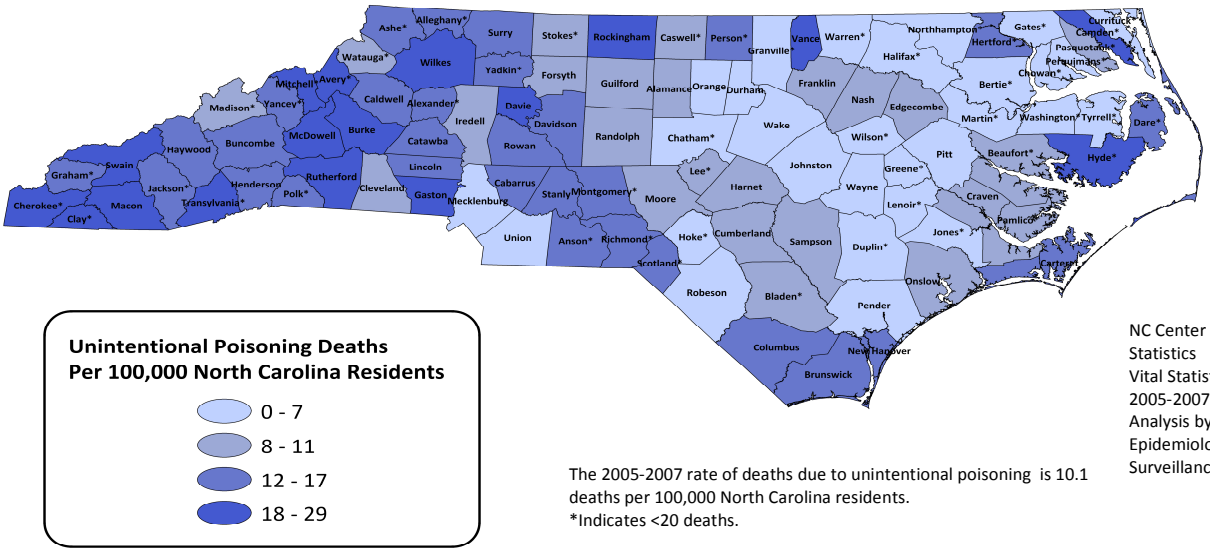
## *Unintentional Poisoning Death Rates by County from 2005 to 2007 (Pooled Population):*

The rates of poisoning deaths are not distributed evenly across the state of North Carolina. During the years 2005-2007, North Carolina had an average unintentional poisoning rate of 10.1 per 100,000 N.C. residents (2,675 deaths). Figure 7 presents the death rates by county for these years. The rates should be interpreted with caution; counties with fewer than 20 deaths may have statistically unstable, and therefore, unreliable rates.

- A total of sixteen counties with stable rates (Brunswick, Burke, Carbarrus, Caldwell, Davidson, Davie, Gaston, McDowell, Macon, New Hanover, Rockingham, Rowan, Rutherford, Surry, Vance, and Wilkes) each had unintentional poisoning rates that were significantly higher than the average state rate.
- The average rate for counties with significantly higher death rates (≥ 20 deaths) was 17.2 (95% C.I. 16.0-18.4).
- Wilkes County had the highest rate of 27.0 (95% C.I. 19.8-34.2) of counties with greater than or equal to 20 deaths.
- A total of 11 counties with stable rates had unintentional poisoning rates that were significantly lower than the state rate.
- Wake County had the lowest rate, 5.7 (95% C.I. 4.7-6.7), of counties with 20 or more deaths.
- Tyrrell and Gates counties did not have any unintentional poisoning deaths.

**Figure 7. Unintentional Poisoning Death Rates (per 100,000 N.C. Residents): N.C., 2005-2007**




NC Center for Health Statistics
Vital Statistics, 2005-2007
Analysis by Injury Epidemiology and Surveillance Unit

The 2005-2007 rate of deaths due to unintentional poisoning is 10.1 deaths per 100,000 North Carolina residents.
*Indicates <20 deaths.

## *Hospitalization, Emergency Department, and Carolinas Poison Center Data:*

**For 2007, the median hospital bill for all unintentional poisoning discharges was over *$9,000* and the total hospital charges for North Carolina was over *$51 million.***

Deaths are not the only adverse effect of unintentional poisoning; nonfatal injury is far more common. Sources of morbidity data include the Carolinas Poison Center (CPC), emergency department (ED), and hospital discharge records. Although these systems will not capture all injuries from unintentional poisoning (and some of these injuries may overlap), these systems provide an approximation of the toll that injury from unintentional poisoning has on North Carolina. In general, Table 3 is roughly organized according to severity of injury: death, hospital admission, ED visit, and CPC calls for information regarding an unintentional poisoning. Table 3 presents these results:

- North Carolina residents are four times more likely to be hospitalized, 10 times more likely to seek treatment from an ED, and 52 times more likely to call the CPC than to die from a unintentional poisoning[9,11,12].
- Although children are unlikely to die from unintentional poisonings, they make up a large percentage of nonfatal cases. Children from ages zero to four have the highest rates of ED visits of any age group.
- Of suspected poisonings reported to the CPC, the overwhelming majority were children in the zero to four-year-old age group.

**Table 3. Unintentional Poisoning Rates (per 100,000 N.C. Residents): N.C., 2007**

| | | Vital Statistics (Deaths) | | Hospital Discharges | | Emergency Dept. Visits | | Carolinas Poison Calls[¥] | |
|---|---|---|---|---|---|---|---|---|---|
| | | *Number* | *Rate[§]* | *Number* | *Rate* | *Number* | *Rate* | *Number* | *Rate* |
| **Gender** | | | | | | | | | |
| | Male | 567 | 12.8 | 1,618 | 36.5 | 4,105 | 92.7 | 31,442 | 710.1 |
| | Female | 334 | 7.2 | 1,827 | 39.4 | 4,591 | 99.1 | 31,970 | 690.0 |
| ***Total*** | | 901 | 9.9 | 3,445 | 38.0 | 8,696 | 96.0 | 63,412 | 699.8 |
| **Age Group** | | | | | | | | | |
| | 00-04 | 2 | * | 149 | 23.4 | 1,823 | 285.9 | 37,059 | 5,811.7 |
| | 05-09 | 1 | * | 22 | 3.5 | 294 | 48.1 | 5,075 | 795.9 |
| | 10-14 | 1 | * | 19 | * | 203 | 34.2 | 2,131 | 359.0 |
| | 15-19 | 29 | 4.7 | 118 | 19.0 | 594 | 95.8 | 1,627 | 262.4 |
| | 20-24 | 80 | 13.1 | 163 | 26.7 | 598 | 98.0 | 1,900 | 311.4 |
| | 25-34 | 172 | 14.1 | 356 | 29.2 | 1,091 | 89.5 | 3,520 | 288.7 |
| | 35-44 | 260 | 19.4 | 584 | 43.5 | 1,232 | 91.9 | 3,441 | 256.5 |
| | 45-54 | 262 | 20.1 | 725 | 55.7 | 1,181 | 90.8 | 2,929 | 225.2 |
| | 55-64 | 68 | 6.6 | 527 | 51.5 | 733 | 71.6 | 2,375 | 232.1 |
| | 65-74 | 14 | * | 399 | 67.4 | 466 | 78.7 | 1,598 | 270.0 |
| | 75-84 | 6 | * | 278 | 75.4 | 331 | 89.7 | 1,117 | 302.8 |
| | 85+ | 6 | * | 105 | 73.6 | 150 | 105.2 | 525 | 368.1 |
| ***Total*** | | 901 | 9.9 | 3,445 | 37.9 | 8,696 | 96.0 | 63,297 | 696.5 |

* Rate is based on fewer than 20 deaths and is considered statistically unreliable.

[§]All rates are per 100,000 North Carolina residents.

[¥]Analysis provided by the Carolinas Poison Center

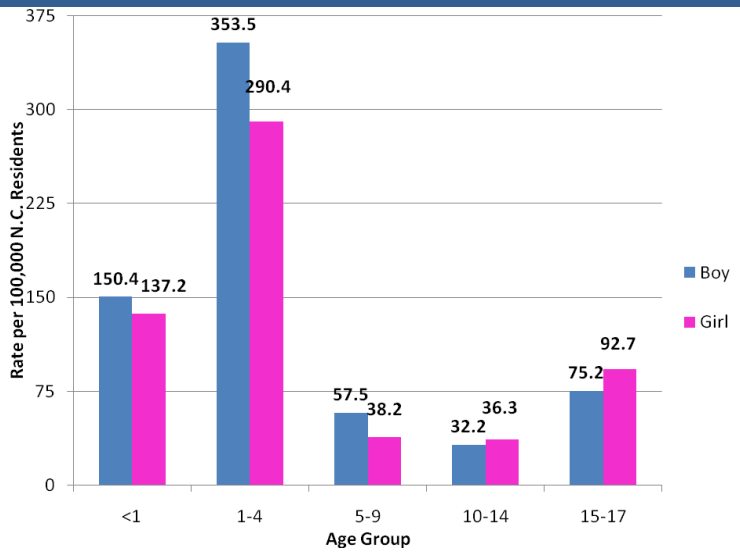
NC DETECT, ED and CPC Data, 2007
Analysis by Injury Epidemiology and Surveillance Unit

## *Unintentional Poisonings in Children*

Although the number of poisoning deaths are low in children under 18 years of age (15 deaths in 2007), children make up a large proportion of nonfatal injuries from unintentional poisonings. Nationally, children under five years of age make up approximately 40% of injuries associated with an unintentional ingestion of poisons[13]. The rate of ED visits for unintentional poisonings in children under the age of 18 is 118.8 (95% C.I. 114.3-123.3). As with adults, unintentional ingestion of pharmaceuticals is the most likely cause of unintentional poisonings. Unlike adults, OTC medications are more likely to be the cause of injury in children than prescription drugs[12]. Figure 8 and Table 4 summarize ED visits of children in 2007 for unintentional poisonings:

- Children between the ages of one and four have the highest rate of ED visits due to unintentional poisoning of all age groups. ED visits for boys is 353.5 and ED visits for girls is 290.4.
- Overall, boys have a higher rate of injury from unintentional poisonings than girls.
- In North Carolina of children between the ages of 10-18, girls have higher rates of unintentional poisoning. This trend is observed nationally as well[8].
- Analgesics, antipyretics, and antirheumatics are the most common cause of unintentional poisoning (378 ED visits). Acetaminophen is the single most commonly identified drug in the ED (165 ED visits).
- Of substances other than medications, environmental tobacco smoke is the most common cause of unintentional poisoning in North Carolina children (204 ED visits). This trend is unexpected and will be the focus of future investigation.

Figure 8. Emergency Department Visits by Age Group and Sex for Unintentional Poisonings: N.C. Residents, 2007




NC DETECT, ED Data, 2007
Analysis by Injury Epidemiology and Surveillance Unit

Table 4. Mechanism of Unintentional Poisonings in Children (<18 yrs.) Admitted to the Emergency Department (ICD-9 E code 850-869): N.C. Residents, 2007

| Cause | | Number | Percent |
|---|---|---|---|
| **Unintentional Poisoning by Drugs** | | | |
| | Analgesics, antipyretics, and antirheumatics | 378 | 22.6 |
| | Systemic agents | 148 | 8.9 |
| | Tranquilizers | 141 | 8.4 |
| | Pyschotropics | 138 | 8.3 |
| | Cardiovascular agents | 118 | 7.1 |
| | Agents acting on smooth and skeletal muscle | 106 | 6.3 |
| | Central nervous system agents | 97 | 5.8 |
| | Other Drugs | 545 | 32.6 |
| | *Total:* | *1671* | *100.0* |
| **Unintentional Poisoning by Other Chemical Substances** | | | |
| | Environmental tobacco smoke | 204 | 21.2 |
| | Other and unspecified solids and liquids | 143 | 14.8 |
| | Foodstuffs and poisonous plants | 132 | 13.7 |
| | Cleansing and polishing agents | 110 | 11.4 |
| | Corrosives and caustics | 98 | 10.2 |
| | Agricultural products | 71 | 7.4 |
| | Other substances | 205 | 21.3 |
| | *Total:* | *963* | *100.0* |



NC DETECT, ED Data, 2007
Analysis by Injury Epidemiology and Surveillance Unit

## *Prevention Strategies*

### For Adults:

- Always follow directions located on the labels of chemicals and medicines. Read all warning labels carefully.
- Take the correct amount of medication and consult a physician, or pharmacist, before combining the medication with other medications or alcohol.
- Keep medications and chemicals in their original containers. Keep prescription medications, especially painkillers, in a safe place[14].
- Dispose of medications correctly. Most can be disposed of in the trash. The Food and Drug Administration and United States Environmental Protection Agency recommend that you place them in sealable containers mixed with an undesirable substance such as coffee grounds or cat litter. Some pharmacies will also take back unused medications[15,16]. Some medications that may be especially harmful to others, such as opioids, may be safely flushed down a drain or toilet[17].
- Do not mix household chemicals together.
- When using chemical products, wear protective clothing and work in a well-ventilated space[14].

Carolinas Poison Center

*Uncompromising Excellence. Commitment to Care.*

The Carolinas Poison Center number is ***(800) 222-1222***. This call is free and specialists are available 24 hours a day, 365 days a year. For additional information, the website is www.ncpoisoncenter.org.

### For Children:

- Save the Carolina Poison Center phone number, 1-800-222-1222, in your cell phone.
- Keep all medications and chemicals in childproof cabinets. Do not store poisonous substances near food.
- Do not leave children unsupervised in the vicinity of household products or drugs.
- Do not refer to medications as candy[18].
- Identify poisonous plants in your house and yard and place them out of reach of children[14].

### What to Do if a Poisoning Has Occurred:

- Call 911 if an emergency. Signs of a poisoning emergency include unconsciousness, convulsions, or difficulty breathing.
- Be aware that symptoms of an overdose may not occur immediately. Symptoms may be delayed for up to several days later[18].
- If the patient is responsive, call 1-800-222-1222.
    - Provide the victim's age, weight, time of exposure, name on the poison container or bottle, and address.
- Follow all instructions provided by the specialist[14].

## *Prevention Strategies*

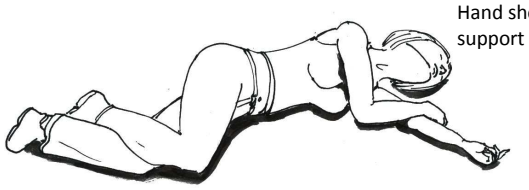
## Preventing and Responding to Opioid and Other Unintentional Poisoning Overdoses:

- Avoiding an overdose:
  - Do not use drugs or other illicit substances alone.
  - Do not mix drugs. If using opioids, avoid alcohol and taking benzodiazepine.
  - Do not use drugs if unsure of their strength or potency.
  - Do not use drugs after a period of prolonged nonuse (such as drug rehabilitation or prison).
- Signs of an overdose:
  - Skin is pale and/or has a blue tint (cyanosis).
  - Difficulty breathing.
  - Unresponsive.
  - Confusion or disorientation.
  - A slow, erratic, or stopped pulse.
  - Body is limp.
  - Vomiting.
- Responding to an overdose:
  - Assess the situation: rub knuckles against the breastbone. If the victim does not react, he/she is unconscious.
  - Place victim on his/her side in the recovery position.
  - If the victim is not breathing, clear airway and provide rescue breathing.
  - Dial 911; mention that the victim has had an overdose so that the medical responders will be prepared to respond to the situation appropriately.
  - Immediate medical help is the best way to prevent death or disability from an overdose. Potentially life-saving antidotes and/or emergency treatment are available[18,20].
  - Fear of prosecution should not interfere with calling for emergency help[18].

### *Rescue Breathing:*

- Tip the head back and place one hand under the neck.
- Close the nose with the other hand.
- If necessary, clear airway.
- Place your mouth over the victim's mouth and give two short breaths.
- Then give one breath every five seconds.

Continue until the victim resumes breathing or professional medical help arrives [19].



## *Additional Sources of Information:*

### North Carolina:

**North Carolina Division of Public Health, Injury and Violence Prevention Branch**
Phone: (919) 707-5425
Email: beinjuryfreenc@dhhs.nc.gov
Website: www.injuryfreenc.ncdhhs.gov

**North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse**
Email: contactdmh@dhhs.nc.gov
Website: www.ncdhhs.gov/mhddsas

**Carolinas Poison Center**
Phone: 1-800-222-1222
Website: www.ncpoisoncenter.org
Prevention Education: (704) 512-3749

**Project Lazarus**
Phone: (336) 262-6768
Email: info@projectlazarus.org
Website: projectlazarus.org/home.html

### National:

**American Association of Poison Control Centers**
Email: wells@aapcc.org
Website: www.aapcc.org

**Centers for Disease Control and Prevention, National Center for Injury Prevention and Control**
Phone: 1 (800) 232-4636
Email: cdcinfo@cdc.gov
Website: www.cdc.gov

**National Safety Council**
Phone: (630) 285-1121
Email: info@nsc.org
Website: www.nsc.org

**Poison Prevention Week Council**
Phone: (301) 504-7058
Email: wells@aapcc.org
Website: www.poisonprevention.org

## *Notes:*

**Rates:** All rates (unless documented otherwise) are per 100,000 North Carolina residents. Rates are not age-adjusted, unless noted otherwise.

**Population Estimates:** The North Carolina State Center for Health Statistics provided population data for the years 1990-2007. These estimates originate from the National Center of Health Statistics' Bridged Population Files.

**Death Data:** The N.C. State Center for Health Statistics provided death certificate data for every death in North Carolina. Only North Carolina residents with a North Carolina county address were considered in our analyses. Primary cause of death was assigned with the International Classification, 10th Revision (ICD-10) codes.

**Hospital Discharge Data:** The N.C. Center for Health Statistics provided hospital discharge data for every hospital discharge of North Carolina residents. A hospital discharge occurs after a patient leaves a hospital following admission. This data does not represent number of patients, but number of discharges (multiple discharges per patient are possible). Cause of injury was assigned with International Classification, 9th Revision, Clinical Modification (ICD-9-CM) External Causes of Injury codes (E Codes).

**Emergency Department Data:** The North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) is a state system that collects and monitors emergency department (ED) for public health purposes. NC DETECT receives data on at least a daily basis from hospital emergency departments statewide to provide early detection and timely public health surveillance. As of 01/2007, NC DETECT was receiving data from 90 of the 112 hospital EDs. The ED data and the hospital discharge data are not mutually exclusive. Cause of injury was assigned with International Classification, 9th Revision, Clinical Modification (ICD-9-CM) External Causes of Injury codes (E Codes).

**Carolinas Poison Center Data:** The North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) collects Carolinas Poison Center (CPC) data for public health purposes. The CPC maintains the poison help hotline for the entire state of North Carolina and receives over 125,000 calls every year from residences as well as health care facilities. Approximately 75 percent of these calls are for a human exposure and 39 percent are determined to have symptoms. Analysis was limited to calls in which a verifiable North Carolina county of residence was provided and to a documented acute exposure from an unintentional poisoning. Cause of injury was assigned using the International Classification, 10th Revision (ICD-10) codes. Call data and ED and hospital discharge data are not mutually exclusive.

## *Notes:*

**Figures 5 and 6:** Death certificates can list up to 20 causes of death including the primary cause of death. These are ICD-10 injury codes, or T-codes.

In Figure 5, causes of unintentional poisoning death were categorized as either illicit drug deaths, prescription/OTC drug deaths, unspecified drug deaths, alcohol deaths, or deaths due to other causes. The illicit drug category includes all Schedule One drugs and cocaine. The codes for illicit drugs are T40.5-T40.9. The category prescription/OTC drugs contains all other specified drug deaths (codes T36-T40.4 and T41-50.9). "Other substances" contains all other causes of unintentional poisoning death, such as exposure to alcohols, other chemical substances, and pesticides (T51-T60 and T65).

The results from Figure 6 are also classified according to ICD-10 injury codes. Figure 6 is limited to leading causes of deaths from Poisoning by Drugs, Medicinal Substances, and Biological Substances (codes T36-T50).

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